tech.mit.edu

Volume 134, Number 24



WEATHER, p. 2

TUE: 65° F | 46° F

Mostly sunny

WED: 67° F | 46° F

Sunny

THU: 64° F | 47° F

Mostly sunny

Tuesday, May 6, 2014

'Major gift' endows new food, water lab

J-WAFS to be interdisciplinary effort

By Austin Hess

MIT alumnus Mohammed Abdul Latif Jameel '78 has provided a "major gift" to establish the Abdul Latif Jameel World Water and Food Security Lab (J-WAFS) according to an MIT press release.

In the release, MIT said the lab would focus on research related to addressing global water scarcity and food shortages. The lab will also reportedly support related research on "population growth, urbanization, and climate variability."

MIT said the lab will begin operations in September 2014 under the leadership of mechanical engineering professor John Lienhard. According to his website, his current research interests include desalination,

water supply, and energy.

MIT President L. Rafael Reif said in a statement that the food and water issues at the center of J-WAFS's future research were among "the most pressing challenges facing humanity."

Lienhard said that the research would take place "all over campus" in participating faculty members' current laboratories and workspaces.

MIT emphasized the interdisciplinary nature of the new lab. Lienhard said in the statement that part of the lab's focus would be to organize existing water and food supply research. In an email to *The Tech*, he said the focus of J-WAFS would be "[U]sing our best assessments of regional drivers of water and food

J-WAFS, Page 9



TAMI FORRESTER—THE TECH

Laura Y. Zhang '15 and Joshua 'Muffin' Gordonson mud wrestle at Senior House's Steer Roast this Friday. Other events included numerous musical performances over the weekend as well as a feast Saturday afternoon.

No. 6 rejoins IFC after years away Six-year stint as an ILG ends following house, IFC votes

By Alex Delmore and Austin Hess

TECH STAFF

MIT's fourth oldest fraternity, The Number Six Club (No. 6), has rejoined the Interfraternity Council after being an Independent Living Group for almost six years. No. 6, MIT's chapter of Delta Psi, had left the IFC in 2008 due to disagreements over the Clearinghouse system used during Rush.

The decision to rejoin the IFC was the result of a vote by No. 6's house members. "We also still wanted to consult with our alumni, particularly the ones who made the decision to leave [the IFC]," said Steven "Jeremiah" Collins '16, one of No. 6's co-presidents. "There was a unanimous vote of approval to rejoin the IFC, with the exception of one abstainer."

According to IFC President Haldun Anil '15, the co-presidents of No. 6 approached him because they felt they lacked "adequate representation" with their previous affiliation and hoped to become part of the IFC. Anil said, "I told them that basically because our values align pretty closely that it would be relatively simple and straightforward for the IFC to advocate on their behalf as well, in addition to the rest of the fraternity community."

Anil said the IFC "had a unanimous vote of approval to admit them back into the IFC."

"Culturally, we really fit in with the IFC," said No. 6's other copresident, Eva "Niki" Edmonds '15. "Within the IFC there's a lot of focus on how a fraternity reinforces its values." Edmonds said that No. 6's values include the love of learning and mutual improvement. She also said that through the IFC, there is more support for hosting social events than there is through the Living Group Council.

Edmonds also said, "unlike the ILGs, we are responsible to a national organization." Collins added,

"I think we just structure ourselves very much like a fraternity, and have trouble relating to ILGs." Edmonds cited a focus on alumni connections and an organized system for Rush events (including the new Clearinghouse system) as benefits of fraternity status not available to ILGs.

"Their culture, their social scene, their values fit in better with the fraternity community as opposed to the ILG community," said Anil. "So it just felt like a logical re-merger, especially since we... talked through their concerns with Clearinghouse, which they don't have anymore."

No. 6 left the IFC in 2008 primarily because they believed that the IFC's Clearinghouse system, an online portal that allows fraternities to track freshmen during Rush, was a violation of the freshmen's privacy.

The Clearinghouse system has been changed since 2008, relieving No. Six's concerns, according to Collins. While the old system

No. 6, Page 8

violation of the freshmen's privacy.

IN SHORT

Join MIT Commuter Connections for Bike Awareness Day 2014 on Wednesday, May 14 from 11:00 a.m. to 2:30 p.m. on the steps of the Student Center. Register your bike with MIT Parking and Transportation. You can also participate in the Mass Commuter Challenge to get free giveaways, including helmets, leg bands, lights, and popcorn.

There is an MIT community meeting to learn more about MIT.nano Tuesday, May 6, 2-3 p.m. in 10-250.

Send news information and tips to news@tech.mit.edu.

OBITUARY

MIT Professor Lazarus researched solar wind

Remembered by colleagues and friends

By John Belcher, Marianne Lazarus, and Julia Lazarus

Editor's Note: John Belcher, an MIT physics professor, was a close colleague of Alan Lazarus. Marianne Lazarus, the wife of Alan Lazarus, and his daughter, Julia, contributed to this obituary.

Alan Jay Lazarus, senior research scientist emeritus at MIT, a gentle man, respectful of all and respected by all who knew him, died peacefully in his home in Lexington, Mass. on March 13 of complications with Lewy body dementia and with cutaneous T-cell lymphoma. He was 82.

Lazarus was born in San Francisco on October 24, 1931. His early education in California schools, completed with a year at Phillips Andover Academy, developed in him a love for learning, especially science. He had summer jobs at Los Alamos and Oak Ridge National Labs, while earning degrees at the Massachusetts Institute of Technology (SB 1953, in physics) and Stanford University (PhD 1958, in high-energy physics, under the direction of W. K. H. Panofsky). He did post-graduate work at the Rand Corporation.

Lazarus' career at MIT, begun in 1959, spanned more than 50 years. He joined space research pioneers Bruno Rossi and Herbert Bridge to study space physics, focusing particularly on space plasma and the solar wind. At MIT's Center for Space Research (now the Kavli Institute for Astrophysics and Space Research), Lazarus helped de-

velop instruments for more than 20 spacecraft missions to learn about the solar wind, including the plasma instruments on board Voyagers 1 and 2, launched in 1977, which are the first spacecraft to travel beyond the edge of our solar system. Instruments he developed continue to provide measurements of the solar wind plasma that buffets Earth, and of the distant boundary between solar plasma and the interstellar medium.

Lazarus was the principal investigator for a solar wind experiment on SOL-RAD 11. He was also a co-investigator for: a solar wind plasma experiment utilizing Faraday cup sensors on Explorers 10, 18, 33, and 35, which studied Earth's magnetosphere; the Mariner 4, Mariner 5, and Mariner 10 missions to Venus and Mars; Pioneers 6 and 7 and Voyagers 1 and 2, which explored the outer solar system; the Imp-7, Imp-8, and Wind spacecraft focused on solar wind near Earth: the Orbiting Geophysical Observatories 1 and 3, which studied Earth's magnetosphere; and the Giotto probe to Halley's comet.

He was the lead or co-author on more than 200 scientific papers. Lazarus' DSCOVR Faraday Cup is scheduled to fly in early 2015 as a real-time beacon for NOAA space weather forecasting. Because it will be sun-pointed and make fast measurements, this instrument will be a prototype for a Faraday Cup on Solar Probe, on which he was a co-in-

Lazarus, Page 9

Fernando F. Cunha '16 races for the fastest lap with his electric go-kart. Students in 2.007, Design and Manufacturing, gathered to race go-karts that they had built over the semester on Saturday, racing in both head-to-head ten-lap races as well as competing for fastest individual lap times.

SENIOR SPRING

The fleeting feeling of the end of MIT, by Somewhere on the Search for Meaning. **FUN, p. 5**

THE END OF TIKI-TAKA?

What Champions League semis have to say about strategy. **SPORTS, p. 11**

LENNY MARTINEZ—THE TECH

NFL SCHEDULE CHANGES

Prime time changes coming this year. **SPORTS, p. 12**



ASIAN DANCE TEAM SPRING SHOWCASE

Exhibition of contemporary and traditional dances.

PHOTO SPREAD, p. 6

MACHINE SPEAK

Q.E.D. shows how to communicate with our robot overlords.

FUN, p. 5

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'Game of Thrones' sees rising unease over rape's role in plot

From its very beginnings, "Game of Thrones," has been riddled with sexual brutality. The franchise, which started as a series of fantasy novels by George R.R. Martin about a bleak, feudal world, has at various times included a warrior king who claims his child bride on their wedding night and the gang rape of a young woman by "half a hundred shouting men behind a tanner's shop."

These scenes and others raised concerns, but this discussion was confined to readers and critics of fantasy fiction.

Now the debate about the series' sexual violence has spilled into the mainstream and grown vehement, fueled by the explosive growth of HBO's "Game of Thrones" series. In its fourth season, the show, which airs Sunday nights, averages more than 14 million viewers and has become the cable network's most watched series since "The Sopranos."

In the latest episode, women held captive in a wintry shelter are sexually brutalized. In the deeply controversial episode that preceded it, a scheming noblewoman in an incestuous relationship with her brother is forced to have sex with him, despite her

Rape is often presented in television plot lines, where it has far-reaching and lasting consequences for the affected characters. But critics of "Game of Thrones" fear that rape has become so pervasive in the drama that it is almost background noise — a routine and unshocking occurrence.

—Dave Itzkoff, The New York Times

Poll finds wide support for **Sterling penalties**

As the fallout continues from the disclosure of racist remarks made by Donald Sterling, owner of the Los Angeles Clippers, a national New York Times/CBS News poll showed that while there is wide support for the actions taken by the NBA, there are deep racial divisions among basketball fans.

Sixty-five percent said the decision by Commissioner Adam Silver to bar Sterling from the league for life and fine him \$2.5 million was an appropriate response to his racist comments, which were made public last weekend. Overall, 21 percent said the league had been too punitive and 10 percent considered Sterling's penalty too lenient.

Six in 10 black fans think racist beliefs such as those expressed by Sterling are prevalent among team owners in professional sports; only 19 percent of white fans agree.

"I would say that most of these white owners are older and carrying prejudices that stem from their upbringing," Solomon Kassa, 26, a doctor originally from Ethiopia now living in Boston, said in a follow-up interview. "That generation inherited their superiority complex and racist attitudes. I'm not saying it's in all of them, but it's in some of them."

At the same time, the public regards race relations in the United States as generally good. Again, the views of whites and blacks diverge. Most whites, 60 percent, view race relations in a positive light; 46 percent of black consider race relations good. In a CBS News poll conducted in March — before the earlier news media storm regarding racist statements made by Cliven Bundy, a rancher in Nevada — an equal number of whites called race relations good, but blacks were slightly more positive then, 55 percent describing race relations as good.

Some have contended that Sterling's privacy had been invaded when the surreptitiously taped conversation was disclosed on the TMZ website. Overall, 54 percent said his punishment was acceptable, while 43 percent said he should not be punished for statements made in private. White fans were split: 48 percent said it was appropriate, 47 percent disagreed.

"They're clearly setting themselves up for a zero-tolerance policy for this kind of speech, whether you say it under your breath in a game or say it to an ex-girlfriend on a taped recording, the league won't accept it," said Gary DiClementi, 27, a lacrosse coach from Gambier, Ohio.

-Marjorie Connelly, The New York Times

MERS virus found in United States for first time

By Donald G. Mcneil Jr THE NEW YORK TIMES

A new virus that has killed more than 100 people in the Middle East has been found in the United States for the first time, in an Indiana health care worker who recently returned from Saudi Arabia, federal health officials said Friday.

The man, whose name, age and exact occupation have not been released, is in stable condition in an Indiana hospital, said Dr. Anne Schuchat, director of respiratory diseases at the Centers for Disease Control and Prevention. He is in isolation and receiving oxygen.

A single American case of the virus — called MERS, for Middle East respiratory syndrome — is "a very low risk," Schuchat said. The CDC is not recommending that anyone change travel plans to the Middle East.

But a team from the agency will travel to Indiana to assist in treatment and to retrace the patient's contacts. He flew from Rivadh, Saudi Arabia, to Chicago via London on April 24, and then reached Indiana by bus. He fell ill on April 27 and was hospitalized the next

The typical incubation period for MERS is five days, and the patient is not known to have infected anyone else. Airline passenger lists will be used to contact everyone who sat near him.

But because bus companies often do not know who bought tickets or who sat where, "that bus ride may be a challenge," said Tom Skinner, a CDC spokesman.

MERS is a coronavirus similar to SARS, or severe acute respiratory syndrome, which killed hundreds of people, mainly in China, in 2002 and 2003.

The newer virus was first reported in 2012 in Saudi Arabia. Since then, about 400 cases have been reported to the World Health Organization; about a third have been fatal. (The numbers are inexact because of delays in laboratory confirmations.)

The virus is thought to have originated in bats, but it is also widespread in camels. While it has not spread easily between humans,

there have been outbreaks within families and in hospitals, where patients have infected paramedics, nurses and doctors.

For unknown reasons, cases began surging in Saudi Arabia in March. Some experts fear that mutations made the virus more transmissible, while others believe that more camels are transmitting it and that carelessness in hospitals has helped it spread.

The classic symptoms are fever and shortness of breath, which indicates pneumonia, but there have been mild cases and unusual symptoms. The WHO suggests that hospitals test any patient who has returned from the Middle East within 14 days.

There have been large recent outbreaks in Saudi Arabia and in Abu Dhabi, United Arab Emirates, and the first case in Egypt was just reported.

There is no cure. Patients may be put on ventilators and given antibiotics to prevent secondary bacterial infections, in the hope that their immune systems will slowly defeat the virus.

Obama orders policy review of executions

By Peter Baker THE NEW YORK TIMES

WASHINGTON - President Barack Obama declared this week's botched execution in Oklahoma "deeply disturbing" and directed the attorney general Friday to review how the death penalty is applied in the United States at a time when it has become increasingly debated.

Weighing in on a polarizing issue that he rarely discusses, Obama said the Oklahoma episode, in which a prisoner remained groaning in pain after sedatives were apparently not fully delivered, underscored concerns with capital punishment as it is carried out in America today. While reiterating his support for the death penalty in certain cases, Obama said Americans should "ask ourselves some difficult and profound questions" about its use.

Within hours, the Justice Depart-

ment outlined a relatively narrow review focused on how executions are carried out rather assessing the entire system. But given Obama's broader comments, supporters and opponents wondered whether he might be foreshadowing an eventual shift in position by the time he leaves office, much as he dropped his opposition to same-sex marriage in 2012.

"In the application of the death penalty in this country, we have seen significant problems - racial bias, uneven application of the death penalty, you know, situations in which there were individuals on death row who later on were discovered to have been innocent because of exculpatory evidence," Obama told reporters. "And all these, I think, do raise significant questions about how the death penalty is being applied."

Whether Obama's concerns lead to policy proposals remained far

from certain, but the administration review comes at a time when the use of the death penalty has begun to recede in the United States. The number of executions has fallen by half since its modern peak in 2000, while a half-dozen states have abolished capital punishment over the past seven years and others have imposed moratoriums or are exploring legislation to repeal it.

The federal government has effectively imposed its own moratorium on carrying out executions since 2010 while trying to figure out issues surrounding the drug cocktail commonly used for lethal injection. The Justice Department said Friday that it would build on that assessment.

"At the president's direction, the department will expand this review to include a survey of state-level protocols and related policy issues," said Brian Fallon, a department spokesman.

WEATHER

Sweet spring supplies sunny scenes

By Ray Hua Wu

STAFF METEOROLOGIST

As green continues popping up here and there, it is clearer and clearer that spring is here. This week, in particular, will be a really nice week. Temperatures will stay between 40F and 70F throughout the week, although with a few showers towards the tail side.

Weather elsewhere in the

country, however, has not necessarily been that nice. An outbreak of tornadoes in nine states at the end of April caused 27 deaths and significant damage. Two of these tornadoes were EF4s. In the midst of tornado season, 2014 moves from being a record inactive tornado season to an almost standard season. Tornado season continues for a couple more months.

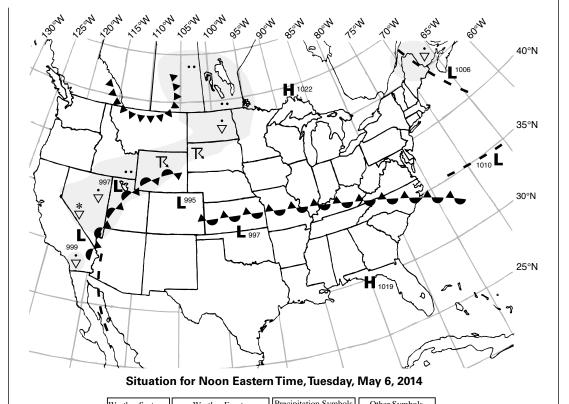
Extended Forecast

Today: Mostly sunny. High around 65F/18C. Winds Northwest up to 15 mph.

Tonight: Clear. Low around 46F/8C. Winds North up to 10-15 mph

Tomorrow: Sunny. High around 67F/19C. Winds East up to 10 mph. May 8: Mostly sunny. High around 64F/18C. Winds South-

west up to 10 mph. May 9: Cloudy with scattered showers. High around 59F/15C. Winds East up to 10-15 mph.



	Weather Systems	Weather Fronts	Precipitation Symbols			Other Symbols		
				Snow	Rain		Fog	
	High Pressure	Trough	au.	*	•	_	Tog	
	••	Warm Front	Showers	∇	$ \nabla $	ΙΙΤ	Thunderstorm	
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Tuesday, May 6, 2014

The Tech 3

Study reveals sizable increase in diabetes among children

By Catherine Saint Louis
THE NEW YORK TIMES

For years doctors have warned of a rising epidemic of diabetes among children. Yet there has been surprisingly little firm data on the ex-

prisingly little firm data on the extent of this disease among younger Americans.

Now a nationally representative

study has confirmed that from 2001 to 2009 the incidence of Type 1 and Type 2 diabetes drastically increased among children and adolescents across racial groups.

The prevalence of Type 1 diabetes increased 21 percent among children up to age 19, the study found. The prevalence of Type 2 diabetes among those ages 10 to 19 rose 30 percent during the period.

Those are "big numbers," said Dr. Robin S. Goland, a co-director of the Naomi Berrie Diabetes Center at Columbia University Medical Center in New York, who has been in practice for about 25 years. "In my career, Type 1 diabetes was a rare disease in children, and Type 2 disease didn't exist. And I'm not that old."

The analysis, published Saturday in JAMA, the journal of the American Medical Association, includes data from more than 3 million children younger than 20 in five states — California, Colorado, Ohio, South Carolina and Washington — as well as from selected American Indian reservations.

The research was funded by the Centers for Disease Control and Prevention and the National Institutes of Health and is part of a continuing study, Search for Diabetes in Youth, examining the condition among children

In Type 1 diabetes, a patient's immune system attacks cells in the pancreas that make insulin, a hormone required to control blood sugar levels. Historically, children affected by the disease were more often white.

But the new report found the prevalence also has increased among black and Hispanic youths.

"I don't understand the basis for an increase," said Goland, who was not involved in the research. "There are a few possibilities, but we need to figure it out if it's something in the environment or something in our

Mixed verdict in Apple-Samsung patent fight

By Brian X. Chen
THE NEW YORK TIMES

SAN JOSE, Calif. — A federal jury said on Friday that Apple and Samsung had infringed each other's patents on some mobile devices, a split decision in the latest court fight between the two technology giants.

The jurors found that at least some Samsung devices infringed two of four patents at issue. The judge in the case, Lucy H. Koh, had already ruled that Samsung infringed a fifth patent. For infringing the patents, the jurors concluded, Samsung must pay Apple \$119.6 million in damages, far below the \$2 billion that Apple had demanded in total.

The Galaxy S3, the cellphone that is one of Samsung's flagship products, accounted for the biggest portion, contributing \$52 million of the damages.

The jurors decided that Apple violated one of the two Samsung patents at issue, awarding Samsung \$158,400 in damages. It had sought \$6 million for both patents combined.

The verdict and damages, which were being reviewed by the lawyers for the two sides, are not big financial blows to Samsung or much of a gain for Apple, two of the world's most successful consumer electronics companies. And the decision does not give any clear momentum to either company in their continuing patent disputes, which have spanned several years and countries.

In 2012, Apple won its first big patent fight against Samsung, and Samsung still owes \$930 million in

Militants kill dozens of Muslims in northeastern India, police say

NEW DELHI — At least 28 Muslims have been killed in three separate attacks on western villages in the northeastern Indian state of Assam, where long-simmering tensions have pitted members of the Bodo tribal group, who are demanding a separate state, against non-Bodo residents, including Muslims.

At least 17 of those killed in the attacks Thursday and Friday were women, and three were children, according to the police. The first attack was on two houses in the Baksa district, where three people were gunned down by militants wielding AK-47s, according to the police in Assam. In the second attack, on houses in the Kokrajhar district, eight were killed and three were injured.

The third attack, on Friday in Baksa, was the most brutal. According to the police, militants descended on a village bordering a national wildlife sanctuary, set 35 Muslim-owned houses on fire and shot at least 17 people.

Police official A.P. Raut said the attacks were committed by militants with the National Democratic Front of Bodoland, a group that has been fighting for a separate state for decades. He said many militants lived in camps in the forest outside the villages.

—Nida Najar and Hari Kumar, The New York Times

Subway train derails in Queens, injuring 19

NEW YORK — The F train slithered across Woodside, Queens, without incident at first, its passengers bound for jobs and latemorning appointments in Manhattan and Brooklyn. But as the train hurtled past the 65th Street station, passengers said, the ride turned earthquakelike: Standing passengers tumbled to the floor, the train ground to a stop and travelers peered through the car windows to find themselves listing to the left of the tracks.

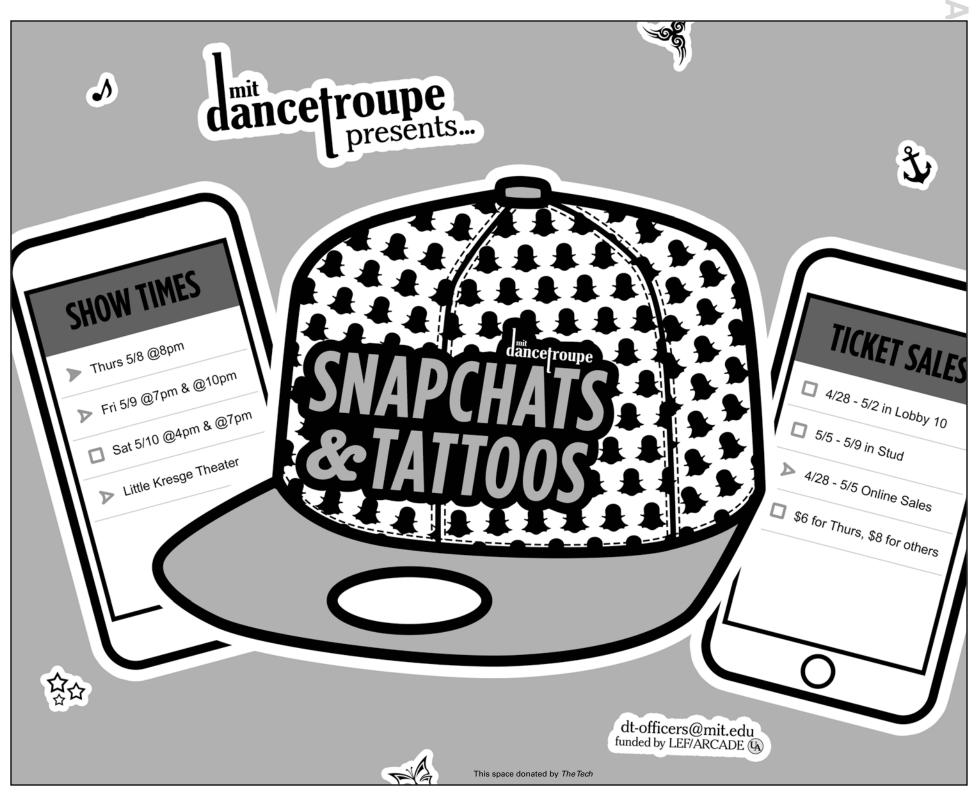
In fact, the authorities said, the middle six cars on the eight-car train had derailed, causing 19 injuries — four "potentially serious," according to the New York Fire Department — and setting off a wide-scale effort to reach about 1,000 passengers who were stranded underground.

"Nobody really knew whether or not the train was going to roll," said Bryan Greene, 30. "Everyone was waiting for that moment to come, and when it didn't, it was a sigh of relief."

The rescue lasted about two hours, as emergency personnel ducked into the dim subway tunnel to shepherd passengers out of the cars, onto the tracks and along a steep climb through an emergency exit leading to the street.

Officials said some of the injuries appeared to involve chest pains and shortness of breath, not body trauma, and none are believed to be life-threatening. It was unclear what caused the derailment, the most serious on the New York City subway system since 1991, according to transit officials.

—Matt Flegenheimer and Edna Ishayik, The New York Times





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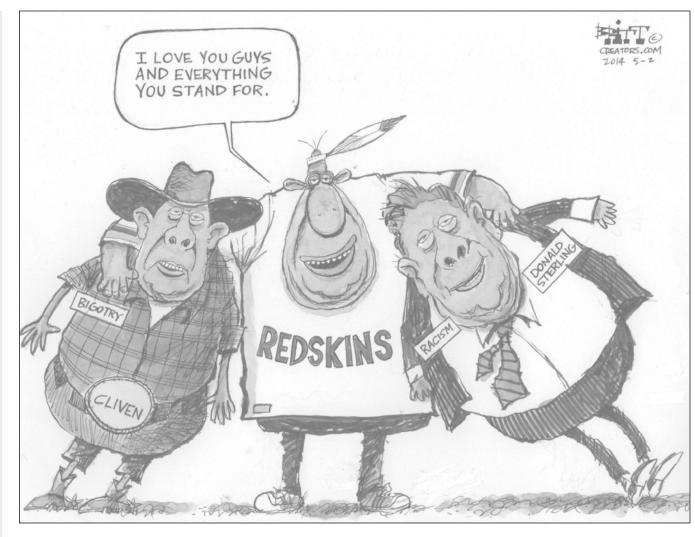
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CORRECTIONS

An article about Joan Jonas in the Tuesday, April 29 issue of *The Tech* incorrectly stated that the her work at the Venice Biennale would be multimedia. In fact, the nature of Jonas's exhibition is not yet known.

OPINION POLICY

Editorials are the official opinion of *The Tech*. They are written by the Editorial Board, which consists of Chairman Annia Pan, Editor in Chief Austin Hess, Managing Editor Judy Hsiang, and Opinion Editor Jacob London.

Dissents are the signed opinions of editorial board members choosing to publish their disagreement with the editorial.

Letters to the editor, columns, and editorial cartoons are written by individuals and represent the opinion of the author, not necessarily that of the newspaper. Electronic submissions are encouraged and should be sent to *letters@tech.mit.edu*. Hard copy submissions should be addressed to *The Tech*, P.O. Box 397029, Cambridge, Mass. 02139-7029, or sent by interdepartmental mail to Room W20-483. All submissions are due by 4:30 p.m. two days before the date of publication.

Letters, columns, and cartoons must bear the authors' signatures, addresses, and phone numbers. Unsigned letters will not be accepted. *The Tech* reserves the right to edit or condense letters; shorter letters will be given higher priority.

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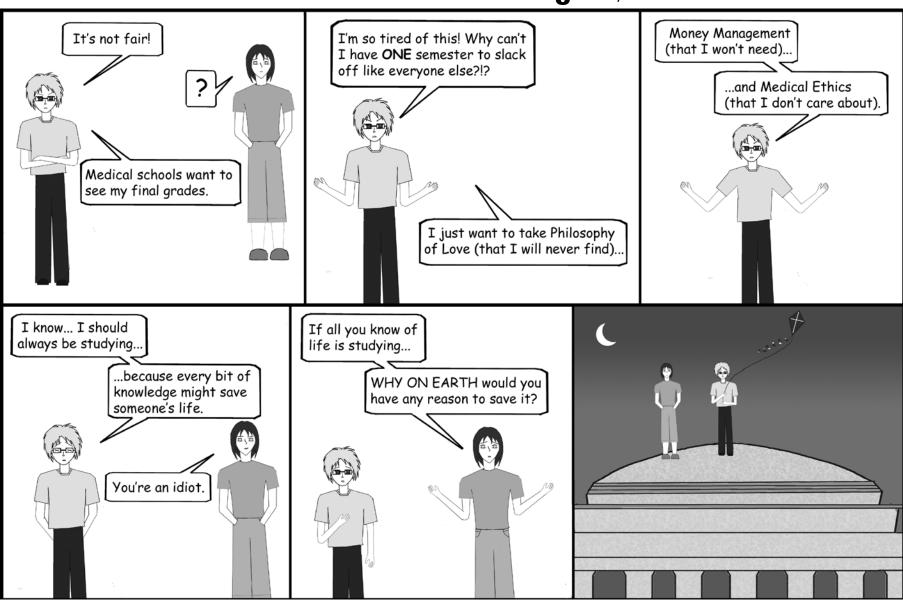
Guest columns are opinion articles submitted by members of the MIT or local community.

TO REACH US

The Tech's telephone number is (617) 253-1541. Email is the easiest way to reach any member of our staff. If you are unsure whom to contact, send mail to <code>general@tech.mit.edu</code>, and it will be directed to the appropriate person. You can reach the editor in chief by emailing <code>eic@tech.mit.edu</code>. Please send press releases, requests for coverage, and information about errors that call for correction to <code>news@tech.mit.edu</code>. Letters to the editor should be sent to <code>letters@tech.mit.edu</code>. The Tech can be found on the World Wide Web at <code>http://tech.mit.edu</code>.

UNFUNFUNFUNFUNFU

Somewhere on the Search for Meaning... by Letitia Li



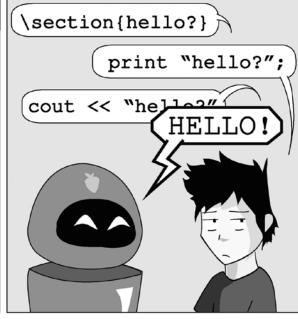
Q.E.D. (QUITE EASILY DONE)

LEARNING NEW SYNTAX: WHAT IT ACTUALLY IS



WHAT IT FEELS LIKE HELLO? 'hello?' print('hello?'

BY ERIKA TRENT



WWW.QEDCOMICS.COM

Saturday Stumper by Anna Stiga

Solution, page 8

ACROSS

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- 63 Will Rogers, for one
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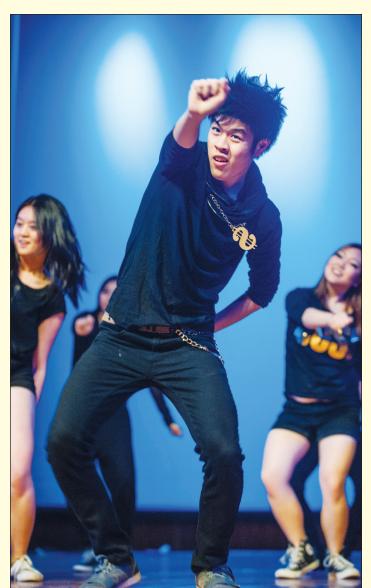
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- 1 Strong suit
- 2 Patton Oswalt's mom on King of Queens
- 3 Portrayer of 20 Across in films
- 4 Since, on some signs
- 5 Six before Francis

- 6 Media-kit stat
- 7 On a task force
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- 34 Where to buy posts, gates and fences

38 Tony-winning musical role

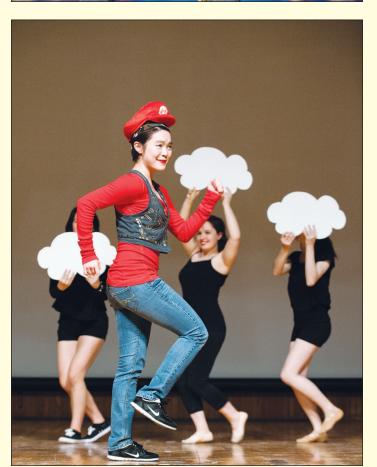
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- 55 A lot
- 57 Haircuts at Google
- 60 Do your part
- 61 Knock off







TAMI FORRESTER—THE TECH





MIT ADT's Spring 2014 showcase: "Checkmate"

1. Weilian Chu '17 dances in "Baddest Female".

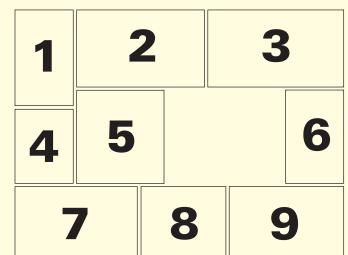
 Ladies of MIT Asian Dance Team perform a Dai ethnicity piece from the Yunnan Province of China.
 Carlos Domene '15 performs in a piece set to the music from the soundtrack of the Disney movie Mulan, following a story of honor, duty, conflict and self-sacrifice.

4. Joy C. Chen '15 embarks on a journey as Mario during the Senior Interlude.
5. Beipeng Mu G (left) and Xiaoyue Xie '14 (right) use fans and handkerchiefs to emulate the beauty of the orchid flower in a Ji-

6. Members of MIT Lion Dance Group entertain the audience with a dance sequence that incorporates elements from many regions of China as well as modern choreography.

Z. Ladies of MIT Asian Dance Team present an adaptation of a dance of the Uyghur people from the western China region of Xinjiang.
 Students from Westwood Chinese School perform "Maiden Warriors", a Chinese classical piece showcasing the agility and grace

9. Tina Zheng '16 (left) and Beipeng Mu G (right) along with other performers in "Resonant Drums" present a Han ethnic piece using sharp movements combined with the striking of drums.











EVENTS

MAY 06 – MAY 12

TUESDAY

(5:30 p.m. – 7:00 p.m.) Taste of India, with free food, performances, and dances, hosted by MIT Sangam and the GSC Activities Committee — Walker Memorial

(7:30 p.m. – 9:30 p.m.) MIT Chamber Music Society Jazz Combos Concert, sponsored by Music and Theater Arts — Killian Hall

WEDNESDAY

(11:00 a.m. – 12:30 p.m.) MIT Police Laptop Tagging and Registration, \$10 cash or MIT cost object per item, sponsored by IS&T Computing Help Desk — Lobby 10

THURSDAY

(12 p.m. – 1 p.m.) Energy 101 Session: An Introduction to Oil and Gas, sponsored by the MIT Energy Club — E51-325

(5 p.m. – 7 p.m.) Comparative Media Studies/Writing and the MIT Game Lab host Philip Jones and show his documentary "Gaming in Color" — E14-

FRIDAY

(5:30 p.m. – 7:00 p.m.) MIT D-Lab Spring Showcase and Open House — N51, 3rd floor

(8 p.m. – 11 p.m.) LSC shows Blue is the Warmest Color, tickets for sale in Lobby 16 for \$4-26-100

SATURDAY

(12 p.m. – 4 p.m.) Family Day at the List: Graphic Text Workshop, family-friendly tour at 2 p.m., free and open to all — E15

(8 p.m. – 10 p.m.) MIT Concert Choir and Orchestra: Verdi Requiem, free in advance via Eventbrite, \$5 at the door — Kresge auditorium

SUNDAY

(11:30 a.m. – 2:00 p.m.) BBQ and frisbee to celebrate Lag BaOmer with MIT Hillel — Kresge lawn

(7:30 p.m. – 9:30 p.m.) MIT Vocal Jazz Ensemble performs the music of Irving Berlin — Killian Hall

MONDAY

(4:15 – 5:15 p.m.) Nuclear and Particle Physics Colloquium, with speaker Simona Murgia from UC-Irvine — 26-414

(6 p.m. – 7 p.m.) Texas Culture Night, sponsored by the Technology Policy Students Society — NW86-185 (Sid Pac seminar room)

Send your campus events to events@tech.mit.edu.

No. 6 back in IFC after votes

No. 6 women now IFC's only female members

No. 6, from Page 1

allowed fraternities to see all the events attended by a given freshman, each fraternity can now only see what events each freshman attended at their own house

Fraternities can also see if a freshman is currently checked into an event at another fraternity. "This system is functional, and much less invasive in terms of privacy," said Collins.

No. 6 will be participating in Rush in the fall of 2014. Edmonds and Collins noted that No. 6's Rush events will not change much from previous years, with the exception of minor changes to abide by the IFC's standard Rush regulations. They said that being a member of the IFC conveys the values and culture of No. 6 more accurately to incoming freshmen. "From a Rush perspective, it's a lot easier for people get an accurate representation of us as a fraternity," said Edmonds.

According to Anil, there is

currently no provision for a fraternity re-joining the IFC after disaffiliating, meaning No. 6 must go through the IFC's new member procedure.

Becoming a new member of the IFC entails a process of going through three stages. The first stage is associate membership; associate members cannot vote at IFC meetings and they only pay half dues. Next, the new member becomes a probationary member, then a full member. In order to progress through the stages, the new member needs a vote of fraternity presidents.

The entire process takes about fifteen months. No. 6 will have to go through these stages in order to rejoin the IFC as a full member.

"We are exploring some other ways for perhaps facilitating the process in the future for members that were members in the past," said Anil, "but as it currently stands, that is the only real way to become a member."

No. 6 is now one of two coed MIT fraternities in the IFC along with Tau Epsilon Phi (tEp), but tEp's national organization, and therefore the IFC, only recognizes its male members. The only women currently represented by the IFC are members of No. 6.

No. 6 became a co-ed fraternity in 1969. When asked about being referred to as "brothers" in IFC proceedings, the presidents of No. 6 did not express concern. "It's not meant to be a statement; it feels more like a functional word. There's a little bit of strangeness because we're such a minority, but that's not intentional or too much of an issue," said Edmonds.

Anil said that no concerns over gendered words in IFC documents had been raised, but said, "If women of No. 6 or No. 6 as a whole express concern about it, we will address that."

Anil said he does not know of any other ILG planning to join the IFC, but said he would be open to the idea if their values aligned with the IFC's.

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J-WAFS lab to fund food, water research

Planned as multi-field MIT effort

J-WAFS, from Page 1

scarcity in conjunction with MIT's strengths in engineering, science, urban planning, and social science, to understand how best to meet the growing demand for food and water in a rapidly changing world."

In an email to *The Tech*, MIT Vice President for Research Maria T. Zuber said, "This activity is intended to engage current MIT faculty and there is no plan to hire additional faculty. We know of many outstanding MIT faculty who are interested in problems that fall within the scope of the lab so we think interest will be very high."

Lienhard said that since the announcement had not been made to the faculty, no faculty members have yet been able to join the lab. He added, "But I know from many years of discussion with my colleagues that interest in water and food sustainability is strong, and that they have a lot of insight to these issues and many remarkable ideas for further work."

In MIT's statement, Robert C. Armstrong, director of the MIT Energy Initiative, said J-WAFS would "complement" much of the energy research at MIT.

Zuber differentiated the mission of J-WAFS from the work of MIT's development-focused D-Lab and Abdul Latif Jameel Poverty Action Lab (J-PAL): "The work of J-WAFS will be very complementary to that of D-Lab and J-PAL. D-Lab deals with design of technology to help people in poverty. J-PAL uses

randomized evaluations and, policy studies and training to fight poverty. J-WAFS will combine science, engineering, urban planning and policy to combat ever-increasing scarcity of clean water and food."

Lienhard said that the lab would begin recruiting undergraduate researchers "very soon."

The donation, meant to support research on global water security and food supply at MIT, is not the first for Jameel. He also established the Abdul Latif Jameel Poverty Action Lab (J-PAL) with a donation in 2005 and expanded it with another contribution in 2009 according to MIT.

According to Zuber, "Mr. Jameel happened to see a presentation by John Lienhard concerning a report John and I wrote about how MIT could contribute solutions to major problems in the environment, that prominently featured water and food. He later contacted John to learn more and became convinced that MIT could make major contributions towards improving lives by bringing MIT's capabilities to bear on these issues."

In MIT's release, Jameel said that his time as an undergraduate at MIT inspired him to endow J-WAFS to "help find solutions to two of the biggest problems facing mankind."

According to MIT, Jameel is President and Chairman of the Abdul Latif Jameel Group (ALJ), which serves as a Toyota and Daihatsu distributor in the Middle East, Europe, and Asia, among other activities.

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Lazarus remembered

Scientist's career spanned 5 decades

Lazarus, from Page 1

vestigator, and which is scheduled for launch in 2018.

In addition to his research position, Lazarus was a senior lecturer in MIT's Department of Physics. He cared deeply about his students and worked to bring delight to their learning experiences, in the first- and second-year physics courses taken by all MIT students (8.01 and 8.02), and by working to develop innovative teaching methods. He ran a modern laboratory course for physics majors that introduced students to techniques of classical and modern physics, and served as co-director of MIT's Inte-

grated Studies Program. Always ready to share his experience and love of MIT, Lazarus was a caring and devoted faculty advisor to many students over the years. In 1963 he was the first recipient of MIT's Everett Moore Baker Award for Outstanding Undergraduate Teaching. From 1977-1980 he was MIT's Associate Dean of Students in Charge of Freshman Advising, where he was instrumental in the creation of the Undergraduate Academic Support Office. In 1998 he received the Department of Physics' William W. Buechner Faculty Award for Teaching.

Lazarus was a beloved colleague to his MIT compatriots, to the many graduate students and senior thesis students he mentored, and to the wider space physics community, nationally and internationally. "I really can't think of another person in our field who would so frequently bring a smile to people's faces as they remembered a time he helped them out, often as a student or post-doc just getting started, and often without asking or expecting anything in return," says Justin Kasper, Professor at the University of Michigan, formerly of the Kavli Institute.

"He really would help anyone who asked."

Lexington, Mass., was Lazarus' home for 42 years. He was an active member of the community, serving as an elected Town Meeting member for 30 years and on various town boards and committees, from Appropriations to Hanscom Field Advisory. He was chair of the group that founded LexMedia, the town television station. He was also deeply interested in the town schools, especially in their teaching of science, and he served on the school system's Science Advisory Council and as a judge for the high school's science fairs.

Lazarus enjoyed swimming, sailing, and the rich atmosphere of MIT's collegial community. He loved music, art, and culture, good food and drink, and the company of friends and family. He is survived by his wife of 43 years, Marianne; his daughter, Julia of Providence, R.I.; his sister and brother-in-law Louise and Pieter de Vries of San Rafael, Calif.; a nephew; three nieces; and their six children. He will be missed by his many friends and colleagues, who gathered in Lexington on April 12 in celebration of his life.

To commemorate Lazarus' dedication and devotion to advising and mentoring students, and to recognize him as a champion of faculty engagement with students, the Alan J. Lazarus (1953) Excellence in Advising Award has been established to be awarded annually to an MIT faculty member who has served as an excellent advisor and mentor to freshmen, and who has had a significant impact on their personal and academic success. Those who wish to make a gift in support of this award may do so by contacting Bonny Kellermann '72, MIT Director of Memorial Gifts, at bonnyk@mit.edu or

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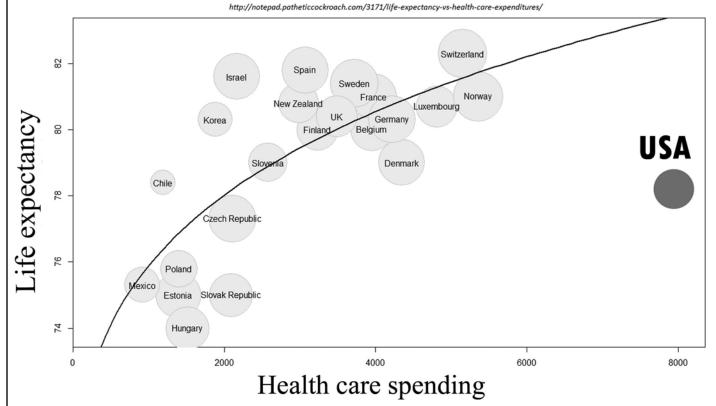
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Life expectancy vs health care spending in 2009. Data source: OECD, november 2011.



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The era of the tiki-taka may be coming to an end

Mourinho's decision to park the bus is the primary factor in Chelsea's elimination

Soccer, from Page 12

job. He had won enough individual and team honors to certify himself as one of the best managers in the game. Everyone was expecting Guardiola's Bayern Munich to continue the previous year's domination.

Initially, it looked as if Guardiola would repeat last year's success. His team claimed the Bundesliga in record time with a record of 25 wins and two ties in the first 27 games of the league. However, their Champions League run was shaky. They had managed to get through to the semifinals, but a recent Manchester United squad managed to scare them, and they struggled to capitalize against a ten-man Arsenal along the way to semifinals.

The major blow to Guardiola came in the second leg, when Real Madrid beat Bayern Munich 4-0 in Munich. This was Bayern Munich's worst home loss in European cup history. Bayern Munich's honorary president had criticized Guardiola of focusing too much on passing and not enough on attacking. He was right in his criticism.

Guardiola's tactic worked in Barcelona because his players had learned to play that way starting at a youth level. The players in Barcelona were tailored for the tiki-taka system. The player group in Bayern Munich, on the other hand, was not accustomed to playing with such emphasis on control and short passing. Bayern Munich's two wingers, Arjen Robben and Franck Ribery, are arguably two of the best wingers outside of Real Madrid. These players are not accustomed to such plays, preferring attacking and a fast build-up rather than a slow build-up, which

the tiki-taka relies on.

They want to have an open field to take on opponents, as their explosiveness and creativity gives them the upper hand. They are not able to use these traits when the build-up takes too long, as with the tiki-taka. Thus, one major criticism specifically to Guardiola's tiki-taka at Bayern Munich is that it failed to bring the best out of his players. This means that the tiki-taka is not for everyone, but does not necessarily imply that the tiki-taka is not what it once was.

Nevertheless, this is an important point—the perfect tactic is relative. While teams should not rely on tactical systems rather than individual players, the tactical systems should be tailored to fit the player group available.

However, the way the tiki-taka has fared with some of Europe's best in the past two years should offer signals that the tiki-taka's fallå from grace is apparent. Since its rise, there have been instances in which the tikitaka has failed to succeed. Guardiola has faced 52 different teams and managed to win against each of them except for Chelsea. This means that Chelsea has been doing something right.

When Guardiola's Barcelona faced Guus Hiddink's Chelsea in the 2009 semifinals, the aggregate was 1-1, and Barcelona advanced on away goals. In the 2012 Champions League semifinals, Roberto Di Matteo's Chelsea achieved a 1-0 win and a 2-2 tie to eliminate them. In addition to these eliminations, Jose Mourinho's Inter managed to eliminate Guardiola's Barcelona in the 2010 semifinals with a 3-1 win and a 1-0 loss. This year, Tata Martino's Barcelona lost to Atletico in the

quarterfinals, and Guardiola's Bayern was crushed by Real Madrid in the semifinals. If one analyzes these losses, the weaknesses in the tiki-taka system become apparent.

The tiki-taka system requires a lot of patience, as the team that employs it looks to find one opening in the opposing team to play a through ball. Therefore, if teams make moves to try and overtake possession, they become vulnerable for a through ball. Instead, if teams look to cover up space and apply pressure that way, the tiki-taka team fails to find the passes it needs, which most recently happened with Bayern Munich against Real Madrid.

Obviously playing such defensive and counter-attacking soccer is extremely hard. Therefore, the tiki-taka works against most teams, but high quality teams have begun to effectively counter the tiki-taka. Thus, the tiki-taka has slowly but surely lost prominence. This is especially true for European soccer as teams like Real Madrid, who look to cover up space and then immediately counterattack, or Atletico Madrid, who apply pressure and limit the passing options, have begun to triumph over the tiki-taka system.

Barcelona will still continue to be a threat in the European championships, but it may not be the force it once was prior to the turn of the decade. As for the tiki-taka, perhaps the defining moment will be the 2014 World Cup. If Spain fails to make an impact in this tournament and stays out of the semifinals, the soccer community might as well look to find a new dominant strategy.

Parking the bus

The second major point that the second

leg matches put forward is the disadvantages of parking the bus. Jose Mourinho's Chelsea opted to only defend in the first leg of the match to avoid conceding a goal. They did not attempt to search for a goal at all, and it cost them. Instead of parking the bus, had they looked to score, they might have actually scored, and that away goal could have altered both teams' approaches to the second match.

The away goal rule exists to incentivize teams to not look for goals in away matches. When teams don't do that, soccer fans are forced to watch a boring game, and the team loses a valuable 90 minutes that they could have used to search for at least one goal. Mourinho has gotten what he's wanted out of parking the bus in previous matches, but it didn't pay in this year's semifinals, as Chelsea have no one to blame but Mourinho in going out to Atletico Madrid.

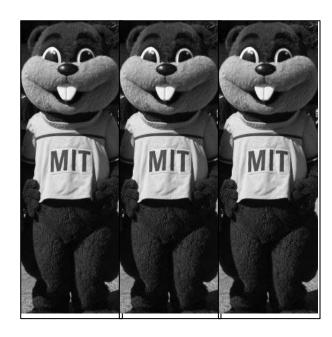
Diego Simeone, on the other hand, showed his tactical genius by applying the same tactic he has used throughout the tournament. He collected the fruits of his tactics with a decisive 3-1 win in London. I hope that this match showed that Mourinho and other managers should not simply focus on defending in matches, but look to attack as well.

While soccer fans continue analyzing these games and discussing key concepts, they should also look forward to enjoy what is left of the soccer season. Aside from the Champions League, the Europa League final will take place on May 14, as Portuguese Benfica will face off against Spanish Sevilla. This last month of club soccer will definitely provide a thrilling segue into the World Cup!

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12 THE TECH TUESDAY, MAY 6, 2014

2014 NFL schedule undergoes multiple changes *Importance of intradivisional matches in teams' playoff runs reflected in schedule*

By Siva Nagarajan

The 2014 NFL schedule was released last Wednesday night, and once again it is backloaded with divisional games, something the NFL has done over the past few seasons to emphasize the importance of facing divisional opponents in deciding playoff spots. This year, 57 of the 96 intradivisional games take place in the last two months, with 35 alone in December.

2013 Week 1 MNF risk didn't pay off

Last season, the NFL did something unique when it scheduled the second game of Week 1's Monday night doubleheader (taking place at 9:20 CT): included a team from the Central Time Zone for the first time. This ratings gamble on latenight TV failed as the Texans fell quickly to a 28-point deficit at the Chargers, making most people in the Eastern and Central Time Zones turn off their TVs and go to

While the Texans did come back to win, the ratings are what the league is concerned about, and they know people will continue to watch most games (even at a large point deficit) as long as they take place at a reasonable hour. It is clear to me that the NFL is not willing to take a similar risk this year. as they have placed two West Coast teams in the second Monday night game in Week 1 (Chargers at Cardinals) in order to guarantee that fans in those two places will stay up for the full game and the league will not lose ratings.

The "no double primetime" rule bends even further

There is a league policy on broadcast rights that states that out of the two games between two teams in the same division, only one can be on NBC, ESPN, or NFL Network, and the other must be on CBS or Fox. Because CBS and Fox used to only broadcast Sunday afternoon games, while the other three networks broadcast primetime games, this rule was thought by many, including myself, to exist solely to guarantee only one primetime game per homeand-home series.

The only exception to the rule is that NBC may broadcast a divisional championship game in Week 17 even if the first game of the series was already in primetime, and this has happened only once before, with the Cowboys and Giants in 2011.

There appears to be a big change in place this year. It seems this rule is being followed to the letter of the law in 2014, as the Ravens and Steelers are actually scheduled to play two primetime games. I had assumed the rule was in place before to prevent two primetime games and was only phrased in terms of networks because those had the primetime channels.

The Seahawks will have a relatively easy start to the season, but they will run the gauntlet in Weeks 11-16.

But I suppose the league's intent had nothing to do with primetime games at all, and instead somehow actually has to do with the channels. CBS has become a Thursday night broadcaster, allowing the Ravens and Steelers to play two primetime games as long as one is a CBS Thursday nighter.

As I said, I had thought the intent behind the rule was to force one of the games to be in the afternoon, perhaps for fan convenience. I now think that the league's policy has more to do with broadcasting rights, and the fact that CBS and Fox have probably signed contracts guaranteeing them to at least half of a conference's intradivisional games.

CBS can now air NFC games

Three of CBS's Thursday night games are games between two NFC teams, as is its Thanksgiving game: Bears at Lions. This results in the first-ever Thanksgiving with all three games as divisional rivalries. Very interestingly, in Week 4, Panthers at Ravens is scheduled to be on CBS, although the road

team is NFC.

In the past, interconference games were always decided by the road team, with AFC games on CBS and NFC games on Fox. I can't find any explanation on any official NFL communications for why this game is scheduled to air on CBS, so I just have to assume that a side effect of CBS's Thursday night deal is that it will sometimes have Sunday afternoon games that traditionally would have aired on Fox.

Flexible scheduling now starts in Week 5

Flexible scheduling is the NFL's way of moving more interesting games that were originally scheduled for Sunday afternoon (because the teams in the games were thought not to be contenders at the beginning of the season) to Sunday Night Football. This policy also includes the ability to switch games scheduled at 1 p.m. ET with games scheduled at 4:05 or 4:25.

Until last season, flexible scheduling didn't start until Week 11, meaning that some midseason primetime games were clunkers. This new policy of allowing flexible scheduling to start in October will guarantee exciting games at the most prime viewing times (4:25 ET and 8:30 ET).

Week 17 schedule remains bland

The NFL's decision starting in 2010 to schedule only divisional games in the final week of the season was a genius one, but it hasn't been executed properly. One of the best rivalries of the last six years, Steelers and Ravens, has still never been played on Week 17. Here are other examples of games I would like to see on Week 17 but once again are not on the schedule: Chiefs/ Broncos; Packers/Bears (It was on the schedule last year, which was a rare good Week 17 decision by the scheduling committee, and it made for a thrilling divisional championship game); Panthers/Saints; 49ers/Seahawks.

All these games have the potential to be divisional championship games. The only games currently on the schedule that I consider exciting are both NFC East games,

either of which I could easily see becoming the title game for the division. Especially for rivalries such as Panthers/Saints and 49ers/Seahawks, in which the division came down to the final week of the season last year, it's incomprehensible to me that the league wouldn't want to have season finale games between these teams.

Tough path to a title defense

The Seahawks open the season on Thursday night of Week 1 when they host the Packers in their first visit back to the Link since the infamous Fail Mary game. They host the Broncos in Week 3, but I actually think the league should have taken advantage of the one-eighth chance of a Super Bowl rematch the following season at the site of the champion, and should have scheduled Broncos at Seahawks as the first game of the season. What I mean by a one-eighth chance is that teams in difference conferences only play each other once every four years, and therefore only play at every stadium in the other conference once every eight years.

While the Hawks may have a relatively easy schedule through the first two months of the season, they run the gauntlet in Weeks 11-16 with the following six games: at Chiefs; vs. Cardinals; at 49ers; at Eagles; vs. 49ers; at Cardinals. The Cardinals barely missed the playoffs last year, and were the only team last season to win at the Link. The 49ers also split the season series with the Seahawks and almost won the division. The Chiefs and Eagles were both playoff teams last season, and while they both lost in the first round, both losses were close games, and either of these teams could beat the Seahawks, especially at home.

On top of all that, the first 49ers game, at Levi's Stadium, is just four days after the first Cardinals game, and is on Thanksgiving night. Even if the Seahawks somehow escape this tough late slate unscathed, it'll be hard to buck this recent trend: The defending Super Bowl champion hasn't won a playoff game the following season since

Stage set for the Champions League final in Lisbon

Semifinals bring up important questions about current, future dominant strategies in soccer

By Ali Soylemezoglu

SPORTS EDITOR

Everything is set for Saturday, May 24. Soccer fans have already marked their calendars for European soccer's biggest night: the Champions League final. This year it will take place in Lisbon, Portugal in Benfica's stadium, the Estadio da Luz.

Prior to last week, there were only two things missing for the final: the two teams that would face off. Following last week's second leg matches of the semifinals, the two teams were determined. For the first time in Champions League history, the final will see two teams of the same city face off, as Real Madrid will be playing Atletico Madrid. While the final will be exciting to say the least, the second leg matches of the Champions League semifinals brought up certain points that have kept soccer fans debating. Let's take a look at them.

End of the tiki-taka era?

Starting with the former Dutch star player Johan Cruyff's tenure as manager at Barcelona, that team had initiated a playing style that relied on short passing and movement with most of the importance given to keeping the ball. This style is commonly known as the tiki-taka. Barcelona has been the best example of the evolution of the tikitaka, as the managers who took charge of the team looked to add to the system. The strategy was perfected under Pep Guardiola, Bayern Munich's current manager.

In his four years as manager at Barcelona, his team won the league three times, the Spanish cup twice, the Spanish Superthree times, the Champions League the UEFA Super Cup twice each, as well as the FIFA Club World Cup twice. Such a track record is enough to prove to anyone that the

Despite the tikitaka's recent rise to prominence, for the past two years it has been in decline.

The success of the tiki-taka was not limited to Barcelona. The Spanish national team adopted the same style of play and went on to win three international cups in a row: the UEFA Euro 2008 and 2012, as well as the 2010 $\,$ FIFA World Cup. They are also considered one of the favorites to win this year's World

Nevertheless, despite the tiki-taka's recent rise to prominence in the soccer world, for the past two years it looks as if it is not as effective as it once was. Barcelona did go on to win the league last season with a record number of points under the guidance of the recently deceased Tito Vilanova. But they went out of the Champions League in the semifinals with an aggregate loss of 0-7 against Bayern Munich.

For a strategy that focuses on controlling the ball, allowing seven goals is a signal that not everything is going as well as it is supposed to. This year, Guardiola brought the tiki-taka system to Bayern Munich when he took over. The team had won the Champions League, the Bundesliga title, and the German cup. Anything less than perhaps two trophies might have been considered unsuccessful for Guardiola. However, he did not have anything to prove when he took the

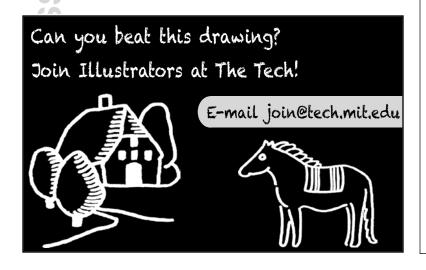
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UPCOMING HOME EVENTS

Tuesday, May 6

Baseball vs. Endicott College

4 p.m., Briggs Field





LENNY MARTINEZ—THE TECH

MIT men's heavyweight crew finished second this past Saturday in the Cochrane Cup, the team's last home event of the season. The Engineers will race twice more before the end of the season.